

In the Claims

Please amend the claims as follows:

1. (Original) A memory array, comprising:
an array plate;
a number of memory cells, each cell including:
a first source/drain region coupled to the array plate;
a second source/drain region;
a channel region between the first source/drain region and the second source/drain region;
a dielectric layer located over the channel region;
a gate electrode located over the dielectric layer;
a ferroelectric dielectric coupled to the gate electrode; and
a control electrode coupled to the ferroelectric dielectric.
2. (Currently Amended) The memory array of claim 1, wherein[[[,] the ferroelectric dielectric layer is a fraction of the area of the gate electrode.
3. (Original) The memory array of claim 1, wherein the ferroelectric dielectric includes a PZT ferroelectric material.
4. (Original) The memory array of claim 1, wherein the control electrode includes a platinum control electrode, and wherein a platinum layer is further located between the gate electrode and the ferroelectric dielectric.
5. (Original) The memory array of claim 1, wherein the dielectric layer includes silicon oxide.

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6. (Original) The memory array of claim 1, wherein the gate electrode includes polycrystalline silicon.
7. (Currently Amended) A memory device, comprising:
an array plate;
a number of memory cells, each cell including:
a first source/drain region coupled to the array plate;
a second source/drain region;
a channel region between the first source/drain region and the second source/drain region;
a dielectric layer located over the channel region;
a gate electrode located over the dielectric layer;
a ferroelectric dielectric coupled to the gate electrode;
a control electrode coupled to the ferroelectric dielectric; and
a sense amplifier circuit coupled to the second ~~source-drain~~ source/drain regions.
8. (Original) The memory device of claim 7, wherein the ferroelectric dielectric includes a PZT ferroelectric material.
9. (Original) The memory device of claim 7, wherein the control electrode includes a platinum control electrode, and wherein a platinum layer is further located between the gate electrode and the ferroelectric dielectric.
10. (Original) A memory array, comprising:
an array plate;
a number of memory cells, each cell including:
a first source/drain region coupled to the array plate;
a second source/drain region;
a channel region between the first source/drain region and the second source/drain region; and

a gate stack located over the channel region, wherein the gate stack includes two capacitors in series, wherein a first capacitor includes a semiconductor oxide dielectric and a second capacitor includes a ferroelectric dielectric.

11. (Original) The memory array of claim 10, wherein the second capacitor includes a first platinum portion and second platinum portion on opposite sides of the ferroelectric dielectric.

12. (Original) The memory array of claim 10, wherein the first capacitor includes a first semiconductor portion and a second semiconductor portion on opposite sides of the semiconductor oxide dielectric.

13. (Original) The memory array of claim 10, wherein the ferroelectric dielectric includes a PZT ferroelectric material.

14. (Original) The memory array of claim 10, wherein the semiconductor oxide dielectric includes silicon oxide.

15. (Currently Amended) A memory device, comprising:

an array plate;

a number of memory cells, each cell including:

a first source/drain region coupled to the array plate;

a second source/drain region;

a channel region between the first source/drain region and the second source/drain region; and

a gate stack located over the channel region, wherein the gate stack includes two capacitors in series, wherein a first capacitor includes a semiconductor oxide dielectric and a second capacitor includes a ferroelectric dielectric; and

a sense amplifier circuit coupled to the second ~~source-drain~~ source/drain regions.

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16. (Original) The memory device of claim 15, wherein the second capacitor includes a first platinum portion and second platinum portion on opposite sides of the ferroelectric dielectric.
17. (Original) The memory device of claim 15, wherein the first capacitor includes a first semiconductor portion and a second semiconductor portion on opposite sides of the semiconductor oxide dielectric.
18. (Original) A memory array, comprising:
an array plate;
a number of memory cells, each cell including:
a first source/drain region coupled to the array plate;
a second source/drain region;
a channel region between the first source/drain region and the second source/drain region;
a silicon oxide layer located over the channel region;
a polysilicon layer located over the silicon oxide layer;
a ferroelectric dielectric between a first platinum portion and a second platinum portion, wherein the first platinum portion is coupled to the polysilicon layer.
19. (Original) The memory array of claim 18, wherein the ferroelectric dielectric includes a PZT ferroelectric material.
20. (Original) The memory array of claim 18, wherein the ferroelectric dielectric and the second platinum portion are a fraction of the area of the polysilicon layer.
21. (Original) A memory array, comprising:
an array plate;
a number of memory cells, each cell including:
a first source/drain region coupled to the array plate;
a second source/drain region;

a channel region between the first source/drain region and the second source/drain region;

a dielectric layer located over the channel region;

a gate electrode located over the dielectric layer;

a dipole charge storing means coupled to the gate electrode; and

a control electrode coupled to the dipole charge storing means.

22. (Original) The memory array of claim 21, wherein the dipole charge storing means includes a ferroelectric dielectric material.

23. (Original) The memory array of claim 21, wherein the dipole charge storing means includes a PZT ferroelectric material.